

### REMARKS

The Examiner has rejected claims 1-13, 15, 16, 18, 19, and 22-29. With this response, Applicants have amended claims 1, 18, 19, 24, and 26. Applicants have also cancelled claims 14, 17, 20, 21, 23, and 25. Thus, claims 1-13, 15, 16, 18, 19, 22, 24, and 26-29 are currently pending and under consideration, and Applicants have addressed the Examiner's rejections and objections in reference to the currently pending claims. Applicants respectfully submit that no new matter is presented with these amendments or additions.

#### I. Restriction Requirement:

The Examiner has required restriction to one of Groups I, II or III, as set forth in the Office Action mailed April 3, 2003. Applicants would like to point out that claim 1, as originally filed, is directed only to those compounds where either  $Z^1$  or  $Z^2$ , but not both, is N, and thus the claims of present application are only directed to those compounds of Group II, as the Examiner has defined them. Applicants apologize for any confusion regarding this matter (including the inadvertent election of Group I during the telephone conversation on March 24, 2003). As the Examiner has noted in the double patenting rejection, copending Application No. 10/027,001 includes compounds of Group I, and compounds of that type are being pursued in 10/027,001, not in the present application. Accordingly, Applicants have further amended claim 1 as detailed in this Response to further clarify that only one of  $Z^1$  or  $Z^2$ , but not both, is N, and thus Applicants hereby elect Group II, *without traverse*, which includes claims 1-26, drawn to a compound of formula I, wherein either  $Z^1$  or  $Z^2$  is nitrogen. Again, Applicants would like to apologize for any confusion regarding this matter.

#### II. Provisional Double Patenting Rejection:

The Examiner has rejected claims 1-6, 13-16, 18-19, and 22-29 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1-30 of copending Application No. 10/027,001. As Applicants have detailed above, claim 1 has been amended to clarify that only one of  $Z^1$  or  $Z^2$ , but not both, is N, and thus Applicants respectfully submit that the Examiner withdraw the provisional obviousness-type double patenting rejection.

III. Rejection under 35 U.S.C. § 112, first paragraph:

The Examiner has rejected claims 24 and 25 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the Examiner asserts that the method for treating Alzheimer's disease is not enabled.

In an effort to expedite prosecution, Applicants have amended claim 24 to remove reference to Alzheimer's disease. Thus, Applicants respectfully submit that the Examiner withdraw the rejection under 35 U.S.C. §112, first paragraph. Applicants reserve the right, however, to pursue claims directed to methods of treating Alzheimer's disease in any future continuation applications.

IV. Rejection under 35 U.S.C. § 112, second paragraph:

a) The Examiner has rejected claim 1 and claims dependent thereon and asserts that the term "heterocyclyl" is indefinite. Applicants respectfully traverse. Applicants respectfully point out to the Examiner that the term "heterocyclyl" is defined in the specification at page 11 starting at line 21, and continuing to page 12, lines 1-28. Specifically, the term "heterocyclyl" is defined as follows:

The term "heterocycle", "heterocyclyl", or "heterocyclic" as used herein includes non-aromatic ring systems having five to fourteen members, preferably five to ten, in which one or more ring carbons, preferably one to four, are each replaced by a heteroatom such as N, O, or S. Examples of heterocyclic rings include 3-1H-benzimidazol-2-one, (1-substituted)-2-oxo-benzimidazol-3-yl, 2-tetrahydrofuranyl, 3-tetrahydrofuranyl, 2-tetrahydropyranyl, 3-tetrahydropyranyl, 4-tetrahydropyranyl, [1,3]-dioxalanyl, [1,3]-dithiolanyl, [1,3]-dioxanyl, 2-tetrahydrothiophenyl, 3-tetrahydrothiophenyl, 2-morpholinyl, 3-morpholinyl, 4-morpholinyl, 2-thiomorpholinyl, 3-thiomorpholinyl, 4-thiomorpholinyl, 1-pyrrolidinyl, 2-pyrrolidinyl, 3-pyrrolidinyl, 1-piperazinyl, 2-piperazinyl, 1-piperidinyl, 2-piperidinyl, 3-piperidinyl, 4-piperidinyl, 4-thiazolidinyl, diazolonyl, N-substituted diazolonyl, 1-phthalimidinyl, benzoxanyl, benzopyrrolidinyl, benzopiperidinyl, benzoxolanyl, benzothiolanyl, and benzothianyl.

Applicants respectfully submit that the above definition answers the Examiners questions regarding the number and nature of heteroatoms and whether the ring can be unsaturated. One of

ordinary skill in the art would recognize that the term "non-aromatic ring systems" includes saturated rings. Furthermore, the definition of the term "heterocyclyl" includes fused ring systems, as follows:

"Also included within the scope of the term "heterocyclyl" or "heterocyclic", as it is used herein, is a group in which a non-aromatic heteroatom-containing ring is fused to one or more aromatic or non-aromatic rings, such as in an indolinyl, chromanyl, phenanthridinyl, or tetrahydroquinolinyl, where the radical or point of attachment is on the non-aromatic heteroatom-containing ring. The term "heterocycle", "heterocyclyl", or "heterocyclic" whether saturated or partially unsaturated, also refers to rings that are optionally substituted."

Applicants respectfully submit that the above definitions render the term "heterocyclyl" definite and respectfully request that the Examiner withdraw his rejection of claims 1 and claims dependent thereon regarding this term.

b) The Examiner has rejected claim 37 and asserts that the abbreviation AML is incorrect. Applicants assume that the Examiner is referring to original claim 25 (which refers to AML) since there is no pending claim 37. As suggested by the Examiner, Applicants have amended claim 24 (which, as amended, incorporates the subject matter of original claim 25) to instead read "ALS" and thus respectfully request that the Examiner withdraw the rejection of claim 24.

c) The Examiner has rejected claims 18 and 24 and asserts that the scope of these claims for methods of treating aurora-2 or GSK-3-mediated diseases is unknown. In an effort to expedite prosecution, Applicants have amended claims 18 and 24 to include specific diseases, support for which can be found throughout the specification. Applicants thus respectfully request that the Examiner withdraw the rejection of claims 18 and 24.

#### CONCLUSION

In view of the arguments and amendments presented above, Applicants believe that currently pending claims 1-13, 15, 16, 18, 19, 22, 24, and 26-29 are currently in condition for allowance. Applicants would like to thank the Examiner for careful review of this application. If it is believed that a telephone call would expedite prosecution, the Examiner is invited to contact the undersigned at (617) 444-6536. The Commissioner is authorized to charge any fees

(including the requested one-month extension of time) (or credit any overpayments) to Deposit  
Account Number: 50-0725, reference number VPI/00-130-6 US.

Respectfully submitted,

Dated: 8/4/03

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